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(3) Establishing the internal environment;
(4) Identifying all the electrical and electronic systems that are subject to the requirements of this section, and their locations on or within the airplane;
(5) Establishing the susceptibility of the systems to the internal and external lightning environment;
(6) Designing protection; and
(7) Verifying that the protection is adequate.

[Doc. No. 25912, 59 FR 22116, Apr. 28, 1994]

INSTRUMENTS: INSTALLATION

§ 25.1321 Arrangement and visibility.

(a) Each flight, navigation, and powerplant instrument for use by any pilot must be plainly visible to him from his station with the minimum practicable deviation from his normal position and line of vision when he is looking forward along the flight path.
(b) The flight instruments required by § 25.1303 must be grouped on the instrument panel and centered as nearly as practicable about the vertical plane of the pilot's forward vision. In addition—
(1) The instrument that most effectively indicates attitude must be on the panel in the top center position;
(2) The instrument that most effectively indicates airspeed must be adjacent to and directly to the left of the instrument in the top center position:
(3) The instrument that most effectively indicates altitude must be adjacent to and directly to the right of the instrument in the top center position; and
(4) The instrument that most effectively indicates direction of flight must be adjacent to and directly below the instrument in the top center position.
(c) Required powerplant instruments must be closely grouped on the instrument panel. In addition—
(1) The location of identical powerplant instruments for the engines must prevent confusion as to which engine each instrument relates; and
(2) Powerplant instruments vital to the safe operation of the airplane must be plainly visible to the appropriate crewmembers.
(d) Instrument panel vibration may not damage or impair the accuracy of any instrument.
(e) If a visual indicator is provided to indicate malfunction of an instrument, it must be effective under all probable cockpit lighting conditions.

[Amdt. 25–23, 35 FR 5679, Apr. 8, 1970, as amended by Amdt. 25–41, 42 FR 36970, July 18, 1977]

§ 25.1322 Warning, caution, and advisory lights.

If warning, caution or advisory lights are installed in the cockpit, they must, unless otherwise approved by the Administrator, be—
(a) Red, for warning lights (lights indicating a hazard which may require immediate corrective action);
(b) Amber, for caution lights (lights indicating the possible need for future corrective action);
(c) Green, for safe operation lights; and
(d) Any other color, including white, for lights not described in paragraphs (a) through (c) of this section, provided the color differs sufficiently from the colors prescribed in paragraphs (a) through (c) of this section to avoid possible confusion.

[Amdt. 25–38, 41 FR 55467, Dec. 20, 1976]

§ 25.1323 Airspeed indicating system.

For each airspeed indicating system, the following apply:
(a) Each airspeed indicating instrument must be approved and must be calibrated to indicate true airspeed (at sea level with a standard atmosphere) with a minimum practicable instrument calibration error when the corresponding pitot and static pressures are applied.
(b) Each system must be calibrated to determine the system error (that is, the relation between IAS and CAS) in flight and during the accelerated takeoff ground run. The ground run calibration must be determined—
(1) From 0.8 of the minimum value of V_1 to the maximum value of V_2, considering the approved ranges of altitude and weight; and
(2) With the flaps and power settings corresponding to the values determined in the establishment of the takeoff path under § 25.111 assuming that the